

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* EDWARD A. BURTON and PAUL MADLAND

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Appeal 2007-0468  
Application 10/750,320  
Technology Center 2800

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Decided: May 25, 2007

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Before KENNETH W. HAIRSTON, JOSEPH L. DIXON, and JAY  
P. LUCAS, *Administrative Patent Judges*.

HAIRSTON, *Administrative Patent Judge*.

DECISION ON APPEAL  
STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134 from a final rejection of claims 1 to 20 and 26 to 30. We have jurisdiction under 35 U.S.C. § 6(b).

Appellants have invented a method and apparatus for adjusting a control signal applied to a substrate to maintain a substantially constant frequency ratio between a signal related to a target circuit frequency and a signal related to a leakage current (Figure 1A; Specification 3).

Claim 1 is representative of the claims on appeal, and it reads as follows:

1. An apparatus comprising:
  - a substrate;
  - a target timing circuit formed on the substrate, the target timing circuit having a frequency related to a target frequency;
  - a leakage timing circuit formed on the substrate, the leakage timing circuit having a frequency related to a leakage current; and
  - a control unit to maintain a substantially constant ratio between the frequency related to the target frequency and the frequency related to the leakage current.

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Mizuno	US 6,166,577	Dec. 26, 2000
Teraoka	US 6,333,571 B1	Dec. 25, 2001
Klemmer	US 6,337,601 B1	Jan. 8, 2002
Miyazaki	US 6,489,833 B1	Dec. 3, 2002
Kudo	US 6,708,289 B1	Mar. 16, 2004 (filed May 30, 2000)
Chen	US 6,883,078 B2	Apr. 19, 2005 (filed Apr. 24, 2002)

The Examiner rejected claims 1, 2, 6 to 18, 26, 27, and 29 under 35 U.S.C. § 102(b) based upon the teachings of Mizuno. The Examiner

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rejected claims 3 to 5, 19, and 20 under 35 U.S.C. § 103(a) based upon the teachings of Mizuno and Klemmer, the Examiner rejected claims 28 and 30 under 35 U.S.C. § 103(a) based upon the teachings of Mizuno.

Appellants contend that a leakage current and a frequency related thereto are not described in the reference to Mizuno (Br. 12; Reply Br. 2 - 4).

We hereby reverse the anticipation rejection of claims 1, 2, 6 to 18, 26, 27, and 29, and reverse the obviousness rejections of claims 3 to 5, 19, 20, 28, and 30.

### ISSUE

Does Mizuno teach a leakage current and a frequency related thereto?

### FINDINGS OF FACT

According to the Appellants, the control unit 108 maintains a substantially constant ratio between the frequency related to the target timing circuit 104 and the frequency related to the leakage timing circuit 106. The target timing circuit and the leakage timing circuit are both formed on a substrate 102.

Mizuno describes a control circuit CNT used in connection with a logic circuit LOG and a variable-frequency oscillation circuit OSC (Figures 1 to 4 and 12).

The Examiner relied on Klemmer because “figure 3 shows a timing circuit having counter 82 coupled to the ring oscillator 80 for the purpose of increasing output frequency” (Answer 6).

### PRINCIPLES OF LAW

Anticipation is established when a single prior art reference discloses expressly or under the principles of inherency each and every limitation of the claimed invention. *Atlas Powder Co. v. IRECO Inc.*, 190 F.3d 1342,

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1347, 51 USPQ2d 1943, 1946 (Fed. Cir. 1999); *In re Paulsen*, 30 F.3d 1475, 1478-79, 31 USPQ2d 1671, 1673 (Fed. Cir. 1994).

Obviousness is determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. *In re Hedges*, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); *In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984).

#### ANALYSIS

We agree with the Appellants' argument throughout the Briefs that the Examiner has not demonstrated that a voltage-controlled oscillator as described in Mizuno has a leakage current and a frequency related thereto as set forth in the claims on appeal.

Turning to the obviousness rejections of claims 3 to 5, 19, 20, 28, and 30, we find that the teachings of Klemmer fail to cure the noted shortcoming in the teachings of Mizuno. The additionally cited references to Teraoka, Miyazaki, Kudo and Chen all fail to teach the claimed leakage current and a frequency related thereto.

#### CONCLUSION

Anticipation has not been established by the Examiner for claims 1, 2, 6 to 18, 26, 27, and 29. The obviousness of the claimed subject matter has not been established by the Examiner for claims 3 to 5, 19, 20, 28, and 30 because the teachings of the secondary references fail to cure the noted shortcoming in the teachings of Mizuno.

#### DECISION

The anticipation rejection of claims 1, 2, 6 to 18, 26, 27, and 29 is reversed, and the obviousness rejections of claims 3 to 5, 19, 20, 28, and 30 are reversed.

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REVERSED

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SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.  
P.O. BOX 2938  
MINNEAPOLIS MN 55402